

### **REMARKS**

This paper responds to the Office Action mailed on July 5, 2006.

No claims are amended, canceled, or added. Applicant incorporates all prior responses by reference to preserve all issues for appeal.

#### **In the Title**

The title has been amended as suggested by the Examiner.

#### **§103 Rejection of the Claims**

Claims 7-8, 13, 16, 18-20, 25, 27-28, 31-32 and 34-41 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Yoon et al. (U.S. 5,688,724) in view of Wurster et al. (U.S. 6,828,191). Applicant respectfully traverses this rejection.

The Examiner has the burden under 35 U.S.C. § 103 to establish a *prima facie* case of obviousness. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). To do that the Examiner must show that some objective teaching in the prior art or some knowledge generally available to one of ordinary skill in the art would lead an individual to combine the relevant teaching of the references. *Id.*

The *Fine* court stated that:

Obviousness is tested by "what the combined teaching of the references would have suggested to those of ordinary skill in the art." *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 878 (CCPA 1981)). But it "cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination." *ACS Hosp. Sys.*, 732 F.2d at 1577, 221 USPQ at 933. And "teachings of references can be combined *only* if there is some suggestion or incentive to do so." *Id.* (emphasis in original).

The M.P.E.P. adopts this line of reasoning, stating that

In order for the Examiner to establish a *prima facie* case of obviousness, three base criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or

suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *M.P.E.P.* § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir. 1991)).

**The fact that references can be combined or modified is not sufficient.**

The fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990); MPEP § 2143.01. Applicant respectfully asserts that the Office Action has not provided adequate evidence of a suggestion of the desirability to combine Yoon and Wurster. In support of the motivation to combine these references, the Office Action states: "it would have been obvious to a person of ordinary skill in the requisite art at the time of the invention was made would forming the gate oxide by using water in process of Yoon et al. as taught by Wurster et al. because forming a gate oxide by using water to protect the device." Applicant respectfully disagrees with this motivation to combine Yoon and Wurster.

First, Wurster does not disclose the use of a wetgate oxide in the formation of a gate stack on a cell nitride, as similarly recited or incorporated in the rejected claims. Claim 7 recites in part: "forming a wetgate oxide ... on the cell nitride." Claim 13 recites in part: "forming a wetgate oxide layer of  $\text{SiO}_2$  on the layer of  $\text{Si}_3\text{N}_4$ ." Claim 16 recites in part: "forming a wetgate oxide layer on the nitride layer." Claim 19 recites in part: "forming a wetgate oxide layer on the nitride layer." Claim 25 recites in part: "forming a wetgate oxide layer on the nitride layer." Claim 28 recites in part: "forming a wetgate oxide layer on the nitride layer." Claim 31 recites in part: "forming a wetgate oxide layer ... on the nitride layer." In contrast with the rejected claims, Wurster discloses the formation of an oxide on the sidewalls of a capacitor trench. The Office Action has provided no support in the record as to whether the oxide formed on the side of the trench would even be capable of forming a wetgate oxide as part of a gate stack on a cell nitride as similarly recited or incorporated in the rejected claims. Applicant requests clarification of the Office Action's interpretation of the Wurster oxide.

Second, Applicant points out that the oxide formed in Wurster is not formed on a cell nitride, or any other layer. The wet oxide formed in Wurster is formed underneath an existing

oxide layer. The Office Action has provided no support in the record that the wet oxide formed in Wurster is capable of formation on a cell nitride, nor has the Office Action provided support that the wet oxide of Wurster is capable of formation on top of anything. Further, Applicant respectfully submits that it is commonly known in the art that the growth of a wet oxide underneath an existing oxide layer such as the CVD layer of Wurster is quite different than the growth of a wet oxide upon a nitride as similarly recited or incorporated in the rejected claims. A wet oxide grown on an existing oxide layer uses the existing oxide as a catalyst to combine with oxygen from the wet environment to grow the wet oxide. As a result, applicant requests clarification of the Office Action's interpretation of the motivation to combine Yoon and Wurster.

Finally, Applicant respectfully disagrees that the stated motivation to combine is sufficient to support an obviousness rejection: "because forming a gate oxide by using water to protect the device." The Office Action has provided no support for the concept that using water protects any device. Applicant cannot find in the cited portions of Wurster any disclosure of the use of a wet oxide to protect anything. Further, even if the wet oxide formation of Wurster does serve a protective purpose, Applicant cannot find any disclosure in Wurster that this protective purpose would extend to the formation of a wetgate oxide on a nitride layer as disclosed in the rejected claims.

**Claimed features lacking in combination.**

Even if the Office Action can support a motivation to combine Yoon and Wurster, the Office Action has not sustained the burden of proving that the references when combined teach or suggest all elements of the rejected claims. The reference (or references when combined) must teach or suggest all the claim elements. M.P.E.P. § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir. 1991)).

Claim 7 recites in part: "forming a wetgate oxide ... on the cell nitride." Claim 13 recites in part: "forming a wetgate oxide layer of  $\text{SiO}_2$  on the layer of  $\text{Si}_3\text{N}_4$ ." Claim 16 recites in part: "forming a wetgate oxide layer on the nitride layer." Claim 19 recites in part: "forming a wetgate oxide layer on the nitride layer." Claim 25 recites in part: "forming a wetgate oxide layer on the nitride layer." Claim 28 recites in part: "forming a wetgate oxide layer on the nitride layer." Claim 31 recites in part: "forming a wetgate oxide layer ... on the nitride layer." In support of this rejection, the Office Action states: "the reference [Yoon] does not teach forming the layer of

$\text{SiO}_2$  by using water to form a wet gate oxide, the capacitance of the dielectric stack and the specific thickness of the layer. Wurster et al. teaches forming a gate oxide in an oxidizing atmosphere of oxygen or water to form an oxide layer."

First, Applicant traverses on the basis that neither Yoon nor Wurster disclose formation of an oxide on anything. As admitted by the Office Action, Yoon does not disclose formation of a wetgate oxide. In contrast with the rejected claims, Wurster discloses formation of an oxide underneath another existing oxide layer, in contact with a substrate wall. Wurster does not disclose formation of a wetgate oxide on anything.

Second, Applicant traverses on the bases that neither Yoon nor Wurster disclose formation of an oxide on a nitride as recited in the rejected claims. As admitted by the Office Action, Yoon does not disclose formation of a wetgate oxide. In contrast with the rejected claims, Wurster merely discloses formation of an oxide over a substrate underneath another oxide. Wurster does not disclose formation of a wetgate oxide on a cell nitride.

Third, Applicant respectfully traverses the statement that "Wurster et al. teaches forming a gate oxide..." As previously mention, Applicant points out that in order for an oxide to be a gate oxide, it must be formed as the gate of an electronic device. Wurster discloses an insulation collar for a capacitor trench. Applicant cannot locate in Wurster any disclosure of a gate, and certainly not a gate oxide.

For at least those reasons stated above, Applicant respectfully requests withdrawal of the rejected claims.

Claims 1-3, 9, 14, 17, 21-24, 26, 29-30 and 33 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Yoon et al. in view of Wurster et al., as applied to claims 7-8, 13, 16, 18-20, 25, 27-28, 31-32 and 34-41 above and further in view of Chao et al. (U.S. 6,156,600) and Tseng (U.S. 5,712,208). Applicant respectfully traverses.

First, Applicant points out that in rejecting these claims the Office Action cited Wurster, but made no reference to how or why Wurster should apply to these claims. As such, the Office Action has not sustained the burden of proof for an obviousness rejection. The Applicant respectfully requests clarification of how Wurster applies to these rejected claims.

Second, Applicant respectfully points out that the above arguments made with respect to claims 7-8, 13, 16, 18-20, 25, 27-28, 31-32 and 34-41 also apply to these claim rejections. Claim 1 recites in part: "forming a wetgate oxide on the cell nitride." Claim 9 is a dependant of claim 7

and incorporates all elements of claim 7. Claim 7 recites in part: "forming a wetgate oxide... on the cell nitride." Claim 14 is a dependant of claim 13 and incorporates all elements of claim 13. Claim 13 recites in part: "forming a wetgate oxide layer of  $\text{SiO}_2$  on the layer of  $\text{Si}_3\text{N}_4$ ." Claim 17 is a dependant of claim 16 and incorporates all elements of claim 16. Claim 16 recites in part: "forming a wetgate oxide layer on the nitride layer." Claim 21 is a dependant of claim 19 and incorporates all elements of claim 19. Claim 19 recites in part: "forming a wetgate oxide layer on the nitride layer." Claims 23 and 24 are dependants of claim 22 and incorporates all elements of claim 22. Claim 22 recites in part: "forming a wetgate oxide layer on the nitride layer." Claim 26 is a dependant of claim 25 and incorporates all elements of claim 25. Claim 25 recites in part: "forming a wetgate oxide layer on the nitride layer." Claims 29 and 30 are dependants of claim 28 and incorporates all elements of claim 28. Claim 28 recites in part: "forming a wetgate oxide layer on the nitride layer." Applicant respectfully asserts that even if the Office Action does extend the application of Wurster to these claims the burden of proof for an obviousness rejection has not been satisfied because there is no motivation to combine Wurster, and because the cited combination does not disclose all elements of the rejected claims. Namely, the cited combination does not disclose formation of a wetgate oxide on a cell nitride.

As a result, Applicant respectfully requests reconsideration and removal of the rejection of these claims.

**CONCLUSION**

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (612) 349-9587 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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By their Representatives,

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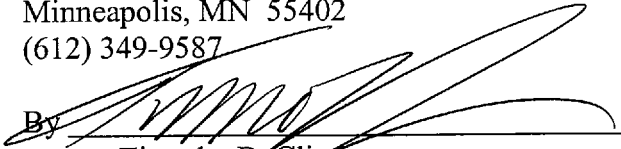
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Date

31 Aug '06

By

  
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**CERTIFICATE UNDER 37 CFR 1.8:** The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 31 day of August 2006.

Name

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Signature

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